IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/782,547	Confirmation No. 3252
Applicant	:	ANDREW BELL	
Filed	:	February 19, 2004	
Title	:	VINYL ADDITION POLYCYCLIC OLEFIN POLYMERS PREPARED USING NON-OLEFINIC CHAIN TRANSFER AGENTS	
Group Art Unit	:	1796	
Examiner	:	Robert D. Harlan	
Customer No.	:	28289	

Commissioner for Patents
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Alexandria, VA 22313-1450

DECLARATION UNDER 37 C.F.R. §1.132

Sir:

I, Andrew Bell, hereby declare and state as follows:

1. I am a Research Fellow in the Promerus LLC, 9921 Brecksville Road, Brecksville, OH 44141-3289. I hold a B.Sc. in Inorganic Chemistry from The University of Bath, England (1980) and a Ph.D. in Organometallic Chemistry from Purdue University (1985). I also completed a postdoctoral fellowship at Massachusetts Institute of Technology, where I studied macrocyclic synthesis and small molecule activation (1985-1987). After finishing my postdoctoral fellowship, I worked as a research scientist in the fields of dicyclopentadiene reaction injection molding and Group VI organometallic chemistry (Hercules Incorporated, Wilmington, Delaware, 1987-1994). I have also performed research and development in the area of polycyclic olefin polymerization chemistry with a focus on nickel and

palladium addition polymerization of polycyclic olefins (The BF Goodrich Company, Brecksville, Ohio, 1994-2000). As Vice President of Technology for Cymetech, LLC, headquartered in Huntsville, TX, I directed the development of new catalysts and commercialization efforts involving ruthenium alkylidene derivatives and norbornene-and dicyclopentadiene-based polymers (2000-April 2001). I am an inventor or coinventor of more than 17 U. S. Patents and international patent applications covering a wide range of subject matter in the fields of polymer science and catalysis. I am also an author or coauthor of numerous scientific articles dealing with polymer chemistry related to the ring-opening metathesis polymerization (ROMP) of cyclic olefins, tungsten and molybdenum aryloxide and alkoxide chemistries, macrocycle synthesis and metal complexation, and Group 6 and Group 12 isocyanide α-diimine derivatives.

2. I have read and am thoroughly familiar with the contents of the above-identified application, as well as the prior art cited by the Examiner and the Board of Appeals, namely, U.S. Patent No. 6,372,869 to Arthur et al. (hereinafter referred to as "Arthur")

3. The present invention is directed to methods of polymerizing poly(cyclic)olefin monomers using polymerization catalysts containing Ni and/or Pd ligated by a monodentate ligand and non-olefinic chain transfer agents; and to unsaturated monomers having a defined formula. The resulting polymers have been found to be useful in photoresist compositions.

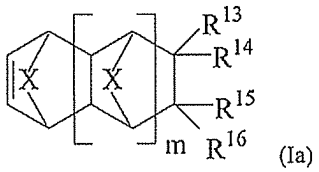
4. The present invention, as embodied by claim 1, is directed to a method of polymerizing poly(cyclic)olefin monomers comprising:

(a) combining a monomer composition comprising one or more poly(cyclic)olefin monomers, a non-olefinic chain transfer agent and an optional activator compound in a reaction vessel to form a mixture; and

(b) adding a polymerization catalyst containing Ni and/or Pd ligated by a monodentate ligand, the catalyst causing the mixture to polymerize;

wherein the non-olefinic chain transfer agent includes one or more compounds selected from the group consisting of H_2, alkylsilanes, alkylalkoxysilanes, alkylgermanes, alkylalkoxygermanes, alkylstannanes and alkylalkoxystannanes.

5. The present invention, as embodied by claim 37 is directed to an unsaturated monomer comprising Formula (Ia):



(Ia)

wherein X is selected from $-CH_2-$, $-CH_2-CH_2-$, O, S and -NH-; m is an integer from 0 to 5; and each occurrence of R^{13}, R^{14}, R^{15} and R^{16} are independently selected from one of the following groups:

(a) H, C_1 to C_{25} linear, branched and cyclic alkyl, aryl, aralkyl, alkaryl, alkenyl and alkynyl;

(b) C_1 to C_{25} linear, branched and cyclic alkyl, aryl, aralkyl, alkaryl, alkenyl and alkynyl containing one or more hetero atoms selected from O, N, and Si;

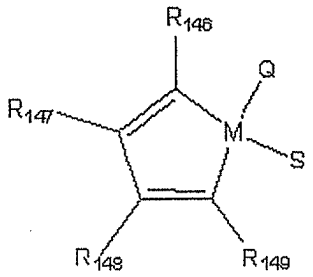
(c) a hydroxy alkyl ether according to Formula (IVa):

$$-A-O-[-(CR^{35}{}_2-)_t-O-]_s-(C\,R^{17}{}_2-)_t-OH \quad \text{(IVa)}$$

wherein A is a linking group selected from C_1 to C_6 linear, branched, and cyclic alkylene, each occurrence of R^{17} is independently selected from H, methyl and ethyl, R^{35} is independently selected from H, methyl, ethyl, and a halide, t is from 1 to 5, and s is from 0 to 3; and

wherein at least one of R^{13}, R^{14}, R^{15} or R^{16} comprise the hydroxyalkyl ether of Formula (IV).

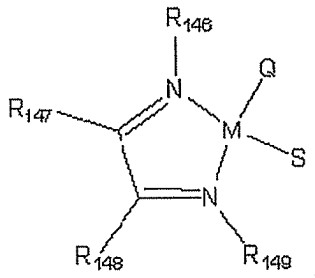
6. In the decision of the Board of Patent Appeals and Interferences, Arthur is relied upon as anticipating the claims of the instant application by the two concurring judges. My understanding of these judges' reasoning seems to rely on compounds (XXXXI) of Arthur, having the formula:



and their belief that these compounds contain monodentate ligands Q and S. Specifically, the decision states that specific embodiments of such ligands are Q=S=Br and Q=S=2-ethylhexanoate. In these examples, M is nickel and the chain transfer agent is H_2.

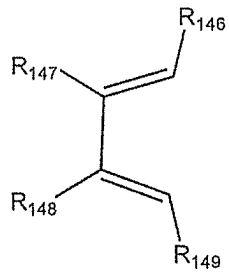
7. HOWEVER, the relied upon structure presented in Arthur (and above) is INCORRECT and thus cannot be relied upon as a basis of a rejection of the claims of the instant application. Specifically, immediately below where such structure is provided in

column 11 of Arthur is the structure's description at lines 17-21. Such description states that "R_{146} and R_{149} are each independently hydrocarbyl or substituted hydrocarbyl, provided that the carbon atom bound to the **imino nitrogen atom** has at least two carbon atoms bound to it" (emphasis added). Therefore, the correct structure of compounds XXXXI must have 2 **imino nitrogen atoms** and is CORRECTLY represented as:



Further, as exemplified in Example 1 and others, this correct structure of compounds XXXXI is the result of the interaction of an appropriate bidentate ligand IV (see Arthur, top of column 2) and an appropriate M(Q)(S).

In no case does Arthur, (see, formulae IV through XXXVI at columns 2 through 5), suggest that the structure:

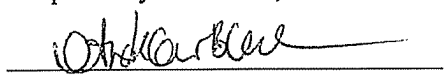


could be a ligand of any kind, yet alone a bidentate ligand, or participate in the interaction necessary to form the INCORRECT structure relied upon by the concurring judges.

8. Still further, in EVERY example provided in Arthur (see, column 12, line 42 through column 17, line 21), a Ni-complex consistent with what is represented above as the CORRECT structure XXXXI is taught. Thus again demonstrating that structure XXXXI as shown in column 11 of Arthur is incorrect and that the concurring judges rejection of the claims of the instant application must also be incorrect.

9. I declare further that all statements made herein of my own knowledge are true and that all statements made on the information and belief are believed to be true, and further that these statements were made with the knowledge that willful, false statements and the like so made are punishable with fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful, false statements may jeopardize the validity of the application or any patent issuing thereon.

Respectfully submitted,



May 8, 2008

Date